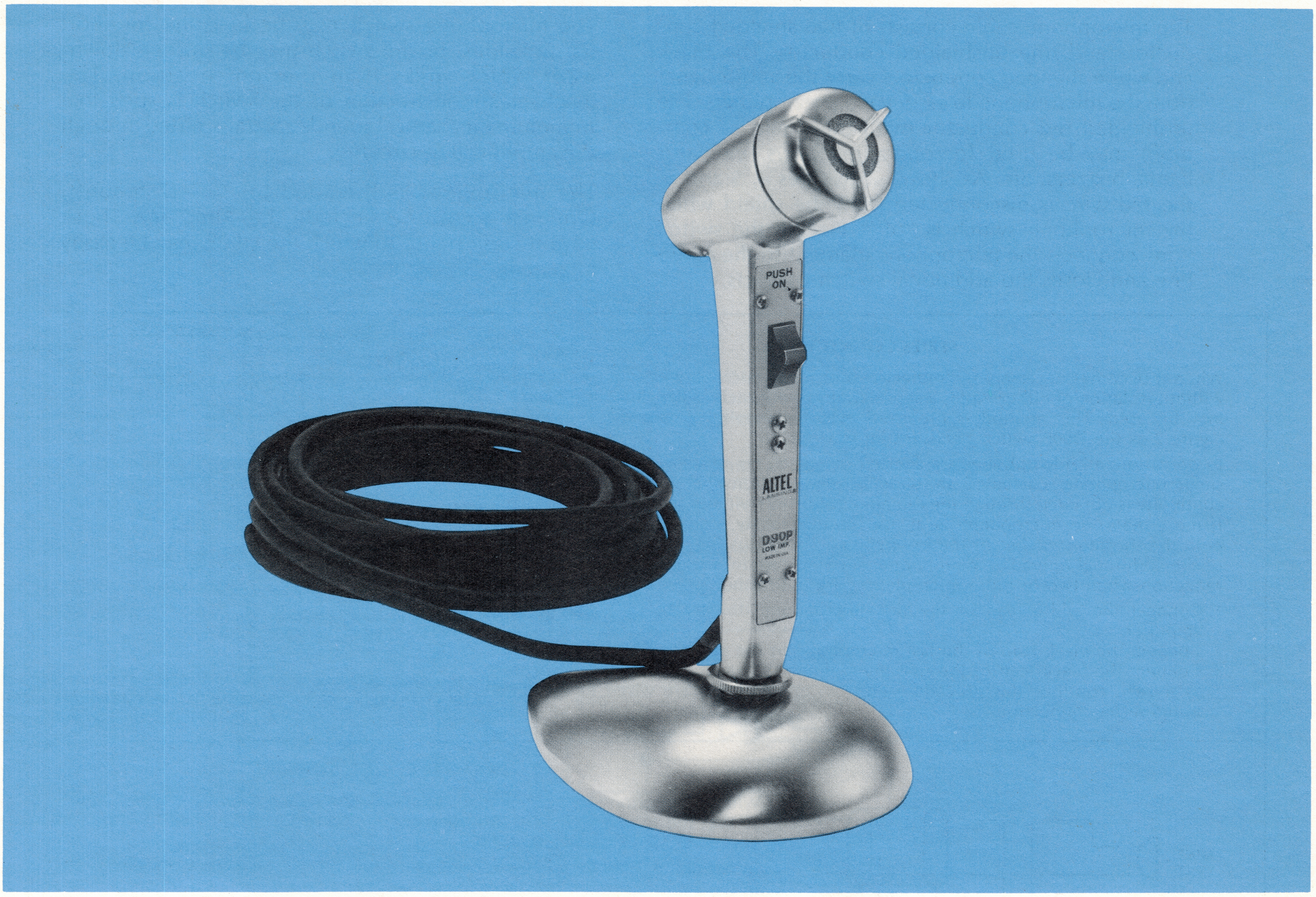
ALTEC
SOUND PRODUCTS DIVISION

D90P ANNOUNCE AND PAGING MICROPHONE



DESCRIPTION

The Altec D90P Announce and Paging Microphone is designed for service in all types of communication applications where maximum intelligibility and clarity of speech must be reproduced.

The D90P is designed to tailor the low-frequency response to achieve optimum results in a variety of unfavorable ambient noise conditions by providing a continuously variable low-frequency response characteristic. Attenuating undesired low frequencies allows this microphone to be used in large indoor areas which have severe sound problems such as low-frequency feedback or where microphones must be placed in close proximity to low-frequency 'rumble.' The adjustable low-frequency response characteristic permits reduction of unwanted interference while maintaining excellent speech reproduction.

The microphone handle contains a slide stack-type switch to provide reliable and silent operation. The switch has an extra set of contacts for operating additional equipment, such as: transmit/receive relays, lights, buzzers, etc. A 15-foot cable is permanently attached to the microphone housing and contains two shielded conductors and one nonshielded conductor which is wired to the extra set of contacts on the switch.

Specifications and components subject to change without notice. Overall performance will be maintained or improved.

INSTALLATION AND OPERATION

The ALTEC D90P Announce and Paging Microphone is designed for service in all types of communications applications. The switch in the microphone handle has auxiliary contacts to operate additional equipment such as relays, lights, buzzers, etc.

The microphone cable consists of two shielded conductors and one unshielded conductor. The black and white shielded conductors carry the audio signal from the microphone to associated preamplifiers. The unshielded red conductor (with the shield as common) may be used for operating relays, indicator lights, buzzers, etc. As shown in Figures 4, 5 and 6, the red wire is disconnected from the shield when the microphone switch is "off". Placing the switch "on" connects the microphone element to the audio line and closes the additional switch contacts.

When a relay or other indicator is utilized, a 20 μF capacitor must be connected between the red lead and the shield, at the location of the relay (Figures 5 and 6) to prevent undesired switching transients ('popping') in the audio circuit.

The microphone switch may be held 'in' for short transmissions, or the switch may be pushed downward which locks it in the 'on' position. The mechanical construction of the switch is such that minimum mechanical sounds are transmitted through the amplification circuitry.

The microphone is threaded for ⅝"-27 mounts. Optional accessories include the Altec 34A Shock Mount Desk stand, to which the D90P may be easily attached.

SERIES CONNECTION:

When it becomes necessary to connect two or more microphones to a single input, without isolation of either input, a series arrangement such as that shown in Figure 1 may be used. This method is preferred over the parallel arrangement shown in Figure 2 as the D90P switch need not be rewired.

In operation, all microphones are shorted out when no switches are open. When a single microphone is actuated, the short is removed from that microphone only and continuity is obtained through the remaining shorted switches to the amplifier input. If more than one microphone is in use simultaneously, continuity is obtained via both the shorted switches of the in-operative units, plus the transformer secondary of the additional operative microphone; such procedure may cause noticeable gain reduction when two or more microphones are used simultaneously.

1. Connect the white lead of the first microphone directly to the input of the amplifier.
2. Connect the black lead of the last microphone to the amplifier.
3. Connect the black lead of the first microphone to the white lead of the second, as shown; continue this procedure until all microphones are wired in the illustrated series connection.

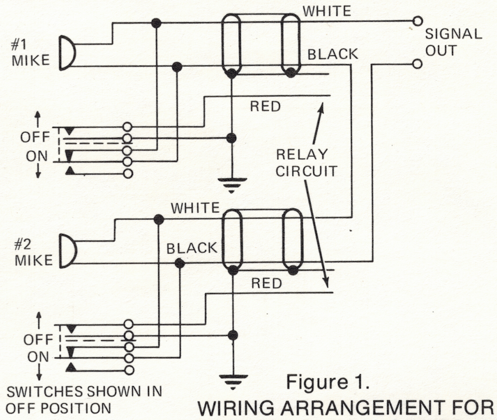


Figure 1.
WIRING ARRANGEMENT FOR MICROPHONES IN SERIES

PARALLEL CONNECTION:

When microphones are connected in parallel, the switch must be rewired (Figure 2) so that the inoperative units are open-circuited when "off" (not shorted out, as in normal or series connections).

In operation, only the microphone(s) switched "on" will furnish a completed circuit to the amplifier input; however, the remaining cable may act as a 'floating' line and pick-up excessive hum and RF signals.

Experimentation has continually shown that, for optimum results, each microphone performs best when connected to a single input.

1. Remove the four screws which hold the escutcheon panel to the front of the microphone handle; gently withdraw the panel and switch assembly so that the contacts (on the rear of the switch) are accessible.
2. Disconnect the black leads from the switch terminal; twist these leads together and solder and tape.
3. Connect the yellow lead to the terminal formerly occupied by the black leads.
4. Move the white lead to the lower terminal.

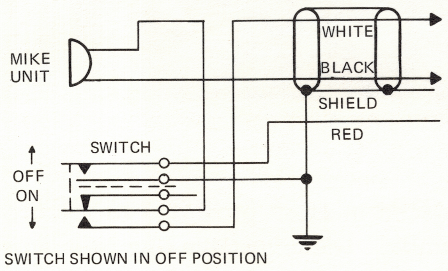


Figure 2. REWIRED D90P
MICROPHONE SWITCH FOR PARALLEL OPERATION

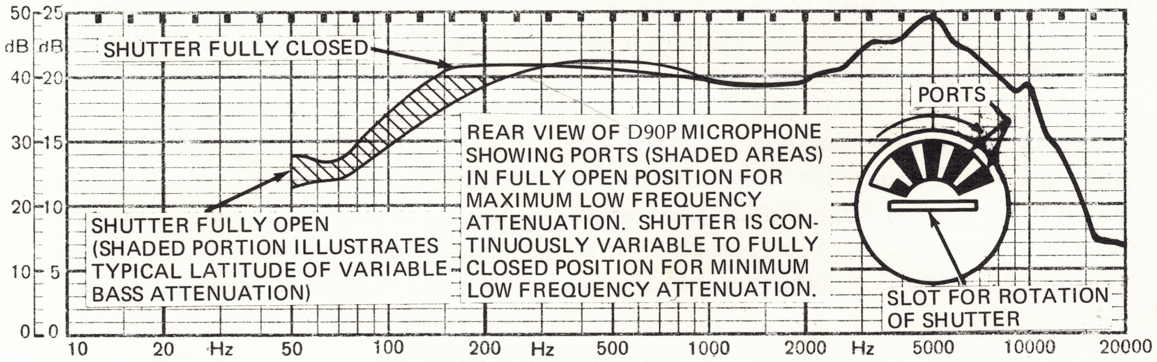
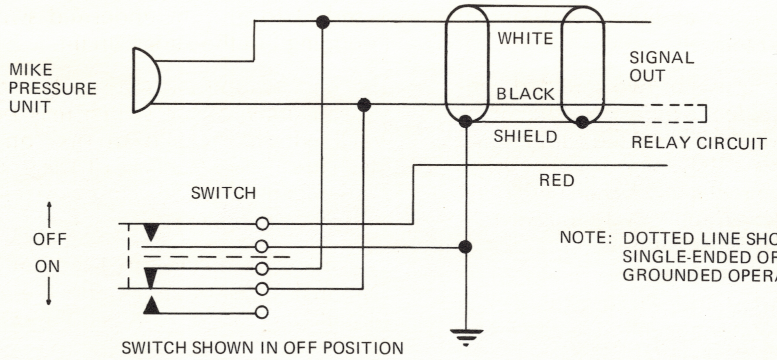
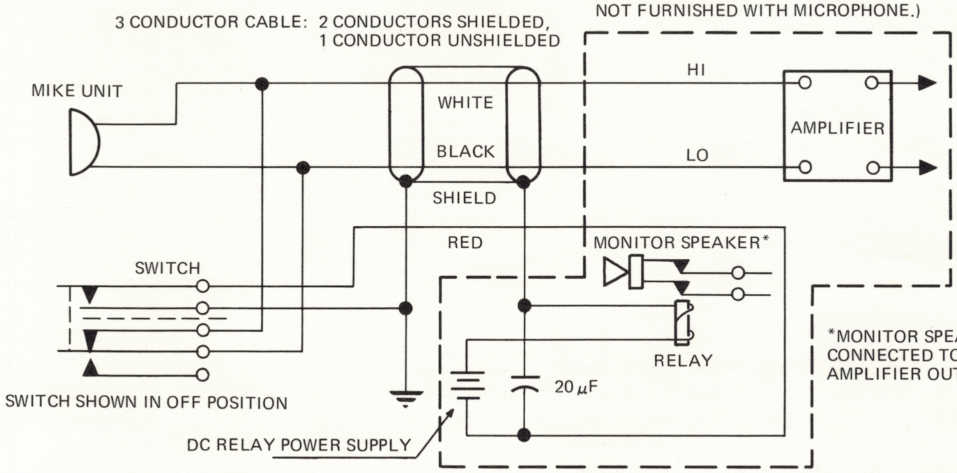


Figure 3. FREQUENCY RESPONSE CURVE—ALTEC D90P MICROPHONE



NOTE: DOTTED LINE SHOWN FOR SINGLE-ENDED OR GROUNDED OPERATION.

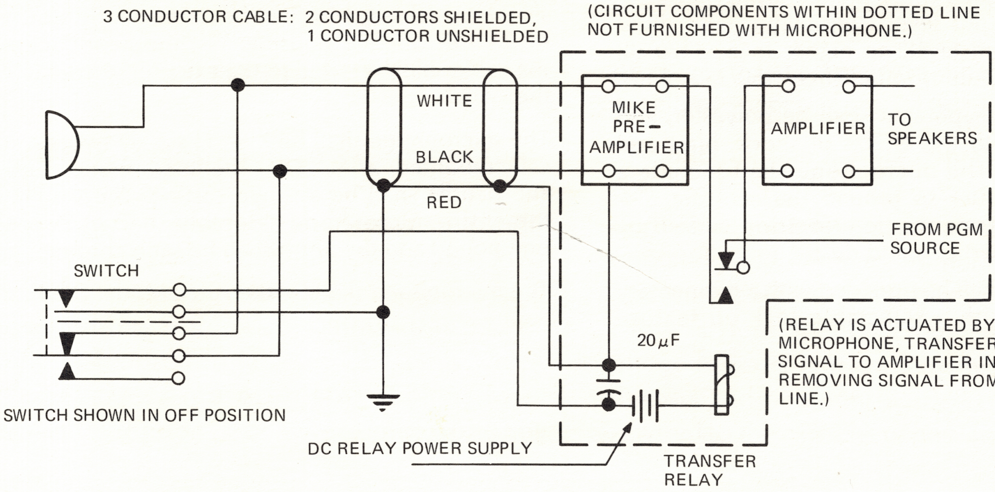
Figure 4. D90P MICROPHONE WIRING DIAGRAM



(CIRCUIT COMPONENTS WITHIN DOTTED LINE NOT FURNISHED WITH MICROPHONE.)

*MONITOR SPEAKER IS CONNECTED TO AMPLIFIER OUTPUT.

Figure 5. D90P MICROPHONE: TYPICAL USAGE AS ANNOUNCE/PAGING MICROPHONE ACTUATING LOUDSPEAKER MUTING RELAY TO PREVENT FEEDBACK.



(CIRCUIT COMPONENTS WITHIN DOTTED LINE NOT FURNISHED WITH MICROPHONE.)

(RELAY IS ACTUATED BY SWITCH IN MICROPHONE, TRANSFERRING MIKE SIGNAL TO AMPLIFIER INPUT AND REMOVING SIGNAL FROM PROGRAM LINE.)

Figure 6. D90P MICROPHONE: TYPICAL USAGE AS ANNOUNCE/PAGING MICROPHONE ACTUATING TRANSFER RELAY

SPECIFICATIONS

Type:	Moving Coil Dynamic
Frequency Response:	50 to 15,000 Hz (with shutter closed). Up to 14 dB of low-frequency attenuation at 50 Hz by varying position of shutter.
Output Impedance:	150/250Ω
Output Level:	−58 dBm/10 dynes/cm^2*
Pickup Pattern:	Omnidirectional
Hum:	−120 dB (Re: 10^{-3} gauss)
Control Facility:	Momentary contact switch with lock-on device on microphone handle and with extra contacts (wired to extra conductor in cable) for actuation of relays, indicator lights, etc.
Dimensions:	7½″ H x 3″ D x 1⅝″ maximum diameter

*10 dynes/cm^2 = 1 Pascal = 10 Microbars

Weight:	1 lb.
Finish:	Satin chrome
Mounting:	Matching 34A Shock Mounting Desk Stand, threaded for attachment of microphone. The D90P also may be utilized on any type of boom, wand, or floor mount having standard ⅝″-27 male threads.
Connections:	15 feet of 3-conductor cable, 80% shielded, is supplied, permanently attached to the microphone.
Accessories:	Altec 34A Shock Mount Desk Stand. Also, see 'Microphone Accessories' bulletin.

ARCHITECT'S AND ENGINEER'S SPECIFICATIONS

The microphone shall be of the dynamic moving-coil type, with an omnidirectional pickup pattern and a variable low-frequency adjustment controlled by rotating a shutter on the rear of the microphone housing. The low-frequency adjustment shall provide a maximum bass attenuation of 14 dB at 50 Hz. With the shutter fully open, the microphone shall have a frequency response from 50 to 15,000 Hz.

The microphone shall meet the following performance criteria. Output level (sensitivity), −58 dBm/10 dynes/cm^2. Hum level, no higher than −120 dB (Re: 10^{-3} gauss). Output impedance, 150/250 ohms.

The microphone diaphragm shall be polyester, and shall be resistant to the effects of shock, blast and corrosive fumes. The microphone shall include a sintered bronze filter to protect the acoustic elements from performance deterioration caused by airborne ferrous particles and dust.

The microphone shall be provided with a momentary contact switch with a selectable lock-on feature enabling the switch in the 'on' position without the user maintaining pressure on the switch. The switch shall provide silent operation when switched to the 'on' position so that no mechanical noise shall be transmitted through the equipment. The switch shall have an extra set of contacts for shunt operation of additional equipments; e.g., indicator lights, buzzers, relays, etc. The microphone shall be supplied with 15 feet of 3-conductor cable, of which 2 conductors shall be shielded, and shall be permanently attached to the microphone housing. The third conductor in the cable shall be wired to the extra set of contacts in the switch.

The microphone shall be 7½″ H x 3″ D (when vertically mounted) x 1⅝″ Dia. The microphone housing and handle shall be a single casting. The weight of the entire microphone assembly shall not exceed one pound and the finish shall be satin chrome.

The microphone shall be the Altec Model D90P.

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